

Case No.: DENSE-049A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Roeters et al.

Serial No.: 09/944,002

Filed: Nov. 6, 2001

For: THERMAL RING USED IN 3-D
STACKING

Group No.: 2827

Examiner: Mitchell, J

#4/A
And
J. Mitchell
10/28/02

AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

Dear Sir:

The foregoing Amendment and remarks are responsive to the Office Action mailed on 4/02/2002.

IN THE CLAIMS:

1. A chip stack comprising:

at least two carrier layers, each of the carrier layers including a first conductive pattern disposed thereon;

at least one thermal ring having a second conductive pattern disposed thereon and including at least two unimpeded flow channels disposed therein, the thermal ring being disposed between the carrier layers, with the second conductive pattern being electrically connected to the first conductive pattern of each of the carrier layers; and

at least two integrated circuit chips electrically connected to respective ones of the